
SECTION 15493 - LABORATORY DRAINAGE SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of laboratory drainage system work is indicated on drawings and schedules, and by requirements of this section.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of laboratory drainage systems products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer Qualifications: Firm with at least 3 years of successful installation experience on projects with laboratory drainage systems work similar to that required for project.
- C. Codes and Standards:



1. PDI Compliance: Fabricate and install laboratory drainage systems in accordance with PDI "Code Guide 302".
2. UPC Compliance: Fabricate and install laboratory drainage systems in accordance with IAPMO "Uniform Plumbing Code".

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for laboratory drainage systems materials and products.
- B. Maintenance Data: Submit maintenance data and parts lists for laboratory drainage systems materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual; in accordance with requirements of Division 1.

PART 2 - PRODUCTS

2.1 MATERIALS AND PRODUCTS

- A. General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials, which match pipe materials used in laboratory drainage piping systems. Where more than one type of materials or products are indicated, selection is Installer's option.

2.2 BASIC IDENTIFICATION



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- A. General: Provide identification complying with Division-15 Basic Mechanical Materials and Methods section "Mechanical Identification", in accordance with the following listing:

1. Laboratory Drainage Piping Above Ground: Plastic pipe markers.

2.3 BASIC PIPES AND PIPE FITTINGS

- A. General: Provide pipes and pipe fittings complying with Division-15 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings", in accordance with the following listing:

- B. Laboratory Drainage Piping: Provide one of the following types:

1. Polypropylene Pipe (PP): Schedule 40; PP DWV socket-type heat fusion joints.

2.4 BASIC PIPING SPECIALTIES

- A. General: Provide piping specialties complying with Division-15 Basic Mechanical Materials and Methods section "Piping Specialties", in accordance with the following listing:

1. Pipe escutcheons.
2. Pipe sleeves.
3. Sleeve seals.

2.5 BASIC SUPPORTS AND ANCHORS



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- A. General: Provide supports and anchors complying with Division-15 Basic Mechanical Materials and Methods section "Supports and Anchors", in accordance with the following listing:
1. Adjustable steel clevises, steel pipe clamps, and pipe saddle supports for horizontal piping hangers and supports.
 2. Two-bolt riser clamps for vertical piping supports.
 3. Concrete inserts, C-clamps, and steel brackets for building attachments.
- B. Support of Plastic Piping: Provide supports and anchors for plastic and glass piping systems as recommended by pipe manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION

- A. General: Examine areas and conditions under which laboratory drainage systems materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF BASIC IDENTIFICATION

- A. General: Install mechanical identification in accordance with Division-15 Basic Mechanical Materials and Methods section "Mechanical Identification".

3.3 INSTALLATION OF PIPING

- A. General: Install laboratory drainage piping in accordance with Division-15 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings".



- B. Install laboratory drainage piping at a 2% downward slope in direction of drain for piping.

3.4 INSTALLATION OF SUPPORTS AND ANCHORS

- A. Install supports and anchors in accordance with Division-15 Basic Mechanical Materials and Methods section "Supports and Anchors". Locate spacing for supports and anchors in accordance with piping manufacturer's recommendations.

3.5 INSTALLATION OF LABORATORY DRAINAGE PIPING PRODUCTS

- A. Cleanouts: Install in laboratory drainage piping as indicated, as required by IAPMO Uniform Plumbing Code; at each change in direction of piping greater than 135 degrees; at minimum intervals of 100 feet (30.45 meters). Install floor and wall cleanout covers for concealed piping.
- B. Flashing Flanges: Install flashing flange and clamping device with each cleanout passing through waterproof membrane.
- C. Acid Waste Dilution Tank:
 - 1. Fill sumps up to fill line with 1" to 3" (25 mm to 80 mm) calcium carbonate (marble) chips.
 - 2. Connect inlet and outlet piping, and vent piping as indicated.
- D. Connection to Building Sewer: At point of connection of laboratory drainage piping system to building sewer, provide T-Wye of same material as laboratory drainage piping.



3.6 EQUIPMENT CONNECTIONS

- A. Drain Connections to Fixtures: Provide drain piping and traps for each fixture indicated to be connected to laboratory drainage system. Provide size indicated, but in no case smaller than that required by IAPMO Uniform Plumbing Code.
- B. Mechanical Equipment Connections: Provide drain piping and traps for each item of mechanical equipment indicated to be connected to laboratory drainage system. Comply with manufacturer's installation instructions.

3.7 FIELD QUALITY CONTROL

- A. Piping Tests: Test laboratory drainage piping systems in accordance with requirements of Plumbing Code.

3.8 ADJUSTING AND CLEANING

- A. Cleaning, Flushing, and Inspecting: Clean, flush, and inspect laboratory drainage systems in accordance with requirements of Division-15 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings".

END OF SECTION 15493

